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ABSTRACT

This paper discusses the theoretical status of Vendler classes in grammar and utterance interpretation. In the 1950s Zeno Vendler outlined a taxonomy of verb classification which grouped verbs into four equal categories: (1) activity terms; (2) accomplishment terms; (3) achievement terms; and (4) state terms. Although Vendler's taxonomy still has a significant influence on linguistic research, many refinements of his scheme classify verbs or atomic sentences into more than four categories. This paper presents an alternative theory which aims to clarify the nature of aspectual information encoded in the lexicon of English, based on the assumption that aspect is a purely temporal phenomenon. It advances a theory that makes a clear distinction between semantic objects and their names on one hand, and between semantic meaning and pragmatic meaning on the other. It argues that Vendler's taxonomy is linguistically significant as classification of situations denoted by linguistic expressions, but not of expressions themselves. It concludes that the apparent complexity and subtleties of the aspectual phenomena found between verbs and sentences/utterances are the epiphenomena created by the interaction between grammar (aspectual semantics) and cognition (utterance interpretation). Contains 59 references. (MDM)

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VENDLER CLASSES AND REINTERPRETATION*

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Abstract: This paper is concerned with the theoretical status of Vendler classes in grammar and utterance interpretation. I argue that Vendler classes should be reinterpreted as a classification of semantic objects in our aspectual ontology and that we need only four discrete categories. Based on this categorization, I propose a relevance-theoretic account of aspectual interpretation in context. The framework sketched in this paper presents a simple representation of English aspectual system and leads to the conclusion that the apparent complexity and subtleties of the aspectual phenomena are epiphenomena created by the interaction between grammar and cognition.

Introduction

Verbal aspect has long been a topic of interest in both linguistic and philosophical traditions. Among the numerous studies in this area, Vendler (1957) is particularly important to us, because most of the recent works in linguistics are carried out making reference to his classification system. This paper aims to clarify the nature of aspectual information encoded in the lexicon of English based on the assumption that aspect is a purely temporal phenomenon. The first half of this paper discusses Vendler's (1957) classification of lexical aspect. Though most recent works on this topic simply assume his four-way taxonomy, it has been frequently pointed out that his classification has some difficulties. Many refined versions classify verb phrases or atomic sentences into more than four categories. These refined classifications are, however, by no means unchangable. In many cases, a verb can shift from its most 'natural' category to another quite easily, and seemingly ungrammatical sentences become acceptable with a little imagination. Considering the vast amount of work on aspect, relatively few attempts have been made to account for this 'reinterpretation' problem (Lys & Mommer 1986, Moens & Steedman 1988, Smith 1992). I present an alternative theory that makes a clear distinction between semantic objects and their names on one hand, and between semantic meaning and pragmatic meaning on the other, and I argue that Vendler's taxonomy is linguistically significant as classification of situations denoted by linguistic expressions, but not of expressions themselves. In this analysis, only four eventualities on the line of Vendler's are to be distinguished to represent the temporal constitution of situations

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denoted by predicative expressions, and the boundary between these four categories are clear-cut.[1]

The latter half of this paper handles the 'reinterpretation' phenomena by drawing a clear boundary between grammar and cognition, stating how aspectual semantics fits into the theory of utterance interpretation. A closer examination of the 'reinterpretation' phenomena reveals that the different categorizations of eventuality instruct us to understand linguistic expressions differently via such processes as metonymical extension. Together with the assumption that lexical aspect is purely and simply a notion of time, the framework sketched in this paper presents a simple representation of the English aspectual system and leads to the conclusion that aspectual semantics is not so complicated as generally considered.

Before leaving this introductory section, I would like to make clear the semantic framework on which this informal study will be based. The basic framework employed here is model-theoretical semantics, semantics as a correspondence theory between language and something that is not language. More specifically I will adopt Bach's (1986b) view of semantics as natural language metaphysics. Following Bach, I will distinguish the theory of meaning as part of the grammar from the theory of utterance interpretation as part of our cognition. I also assume aspect as a purely temporal phenomena, which is shared and motivated by algebraic semantics proposed in Link (1983, 1987), Hinrichs (1986) and Krifka (1986, 1989, 1992a). As for the pragmatic/cognitive framework, I will employ the Relevance Theory developed by Sperber and Wilson (1986). Details of this theory will be introduced when necessary in the discussion.

1. Vendler (1957) and Beyond

Vendler's (1957) Classification

Most of the recent works on lexical aspect are carried out either as a reaction to or by making reference to Vendler's (1957) classification. He set out a taxonomy of verbs, where VERBS are classified into FOUR aspectual classes of EQUAL status. The four categories distinguished are given in (1) with representative examples of verbs in each category.

(1) a. activity terms: *run, walk, swim, push (a cart), drive (a car)*, etc.
b. accomplishment terms: *paint (a picture), make (a chair), build (a house), run (a mile), walk (to school), deliver (a sermon)*, etc.
c. achievement terms: *reach (the summit), win (the race), die, find*, etc.
d. state terms: *have, desire, love, hate, want, know, believe, rule*, etc.

I follow his terminology throughout this paper. Vendler employs several linguistic tests to distinguish these verb classes.[2] First, based on their ability to occur in the progressive, Vendler distinguishes activities and

accomplishments from states and achievements. Assuming that the progressive form is compatible only with durative situations, he characterizes the former as 'continuous' and the latter as 'punctual'.

(2) What are you doing
a. I am running. (activity)
b. I am writing a letter. (accomplishment)
c. *I am recognizing Jim. (achievement)
d. *I am knowing Mary. (state)

Next, activities and accomplishments are distinguished by the kind of adverbials they are compatible with. Durational adverbials with *for* occur with activities, but not with accomplishments (Test 2). Just the opposite is the case with adverbials with *in* and *take ... to ...* construction (Test 3). Based on these observations, Vendler designates activities and accomplishments as temporally homogeneous and heterogeneous respectively. In other words, accomplishments do and activities do not have a set terminal point 'which is logically necessary to their being what they are' (Vendler 1967: 101).

(3) a. For how long did he push the cart? (activity)
He pushed the cart for half an hour.
b. *How long did it take to push the cart?
*It took for half an hour to push the cart.
*He pushed the cart in half an hour.

(4) a. *For how long did he draw the circle? (accomplishment)
*He drew the circle for twenty seconds.
b. How long did it take to draw the circle?
It took twenty seconds to draw the circle.
He drew the circle in twenty seconds.

States and achievements are also distinguished from the kinds of compatible temporal adverbials. States are compatible with *for*-durationals, but not with punctual adverbs. On the other hand, achievements occur with instantaneous adverbials only. Vendler notes that 'while achievements involve unique and definite time instants, states involve time instants in an indefinite and nonunique sense.' (Vendler 1967: 107). His classification system is summarized in Table 1 below.

(5) a. At what time did you reach the top. (achievement)
I reached the top at noon sharp.
b *For how long did you reach the top?
*I reached the top for three years.

(6) a. *At what time did you love her? (state)
*I loved her at noon sharp.

b For how long did you love her?
I loved her for three years.

verb class \ test	Test 1	Test 2	Test 3	Test 4
Activity	OK	OK	*	n.a.
Accomplishment	OK	*	OK	n.a.
Achievement	*	*	n.a.	OK
State	*	OK	n.a.	*

Test 1: Ability to appear in the progressive
Test 2: Ability to occur with temporal adverbials headed by *for*
Test 3: Ability to occur with temporal adverbials headed by *in*
Test 4: Ability to occur with instantaneous adverbials
(n.a. = the test is not applied by Vendler)

Table 1: Vendler's (1957) classification tests

Post-Vendler Classifications

In Vendler's analysis, VERBS are classified into FOUR categories of EQUAL standing. It has been frequently pointed out, however, that his classifications have some problems, and many refinements have been proposed. This subsection summarizes some of the main problems with Vendler's classifications and new directions proposed in the literature.

Structured taxonomy: Vendler's aspectual categories must be structured taxonomically. In other words, the four categories are not of the equal standing with each other. Mourelatos (1978) and many others argue that Vendler fails to make the basic distinction between states and non-states on the one hand, and between telic and atelic events on the other. Contra Vendler, achievements are more like accomplishments than states, as illustrated by the following example.

(7) The patient was dying in a few minutes. (achievement)

Based on such observations, Mourelatos (1978) introduces a structured taxonomy, which is reproduced here with my terminology in part:

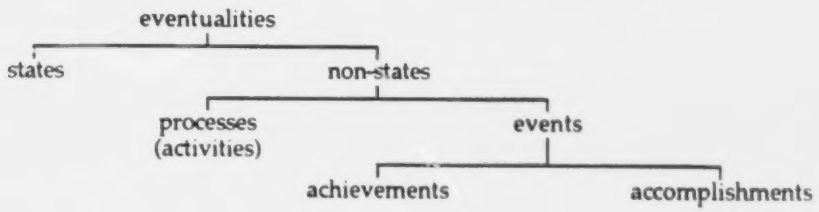

Figure 1: Mourelatos' (1978) taxonomy

Inflation of categories: It is frequently pointed out that Vendler's four-way taxonomy is not exhaustive, and many refined versions of

Vendlerian classification include more categories than Vendler's original. Dowty (1979), Moens and Steedman (1988) and Smith (1991) distinguishes five categories, L. Carlson (1981) six, Bach (1986) seven, Lys and Mommer (1986) seven. For example, Bach (1986) proposes the following classification, reproduced here with our terminology in part.

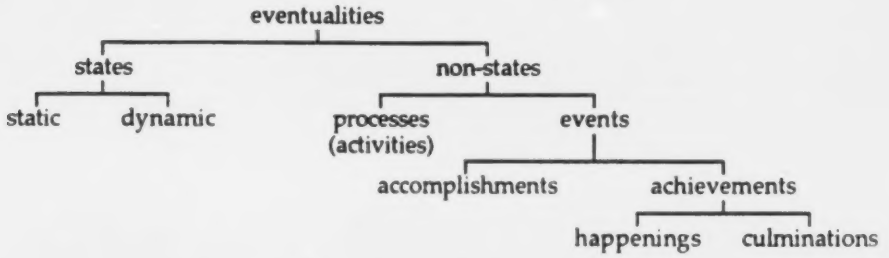

Figure 2: Bach's (1986) taxonomy

The question remains as to how many classes are to be distinguished. We will return to this problem later in this section.

Aspectual composition: Verbs are not the only determinant of aspectual meaning, as pointed out in Garey (1957), Verkuyl (1972), Mourelatos (1978), Platzach (1979), Dowty (1979), L. Carlson (1981) and elsewhere.

(8)	a.	John ate an apple yesterday	(accomplishment)
		John ate apples yesterday.	(activity)
	b.	John ran this morning.	(activity)
		John ran to the station this morning.	(accomplishment)

For example, sentences with the transitive verb *eat* can be an accomplishment or an activity sentence depending on the type of its object NP. Similarly, the adverbial *to the station* takes an activity verb *run* and return an accomplishment VP *run to the station*. It is now clear that the aspectual types are not predictable from the verb alone. However important, the verb is only a determinant of sentential aspect, and therefore it has become a widely accepted idea that it is not the aspectual properties of verbs but those of VPs or atomic sentences that must be classified.[3] It does not seem linguistically significant, however, to classify sentences in terms of their aspectual meanings. Rather, we are in need of a theory of aspectual composition that can predict the sentential aspect from the meaning of its constituents. In fact, some attempts have been made, for example, in Verkuyl (1972), Platzach (1979), Mittwoch (1980), Krifka (1989, 1992), Tenny (1987), and Smith (1991). In this paper, we are not concerned with the nature of aspectual composition in any detail.

In aspectual composition, we need to make reference to lexical information of verbs. In this context, however, Vendlerian verb classification

does not help so much. We cannot predict aspectual properties of complex expressions by simply marking a verb with one of Vendler's four labels. Introducing more eventuality labels would not make this situation any better, but would merely make aspectual semantics more complicated. In short, Vendlerian verb classification fails when it identifies the set of aspectually distinguishable verb classes with the set of eventuality types. Possible aspectual meaning of a verb is predictable from its non-aspectual meaning, and verbs of a semantic class usually share the same set of possible aspectual meaning. This is not visible in Vendlerian classification. Furthermore, many verbs are polysemous, and verbs of different semantic classes show different syntactic alternation patterns (See Miller & Fellbaum 1991, Levin 1993 for detailed discussion). Since verbs' thematic structure and their syntactic realization pattern affect their aspectual meaning, verbs under the same Vendlerian class may have different sets of possible aspectual meanings and their composition because of their difference in meaning. Viewed in this light, we safely conclude that Vendlerian verb classification is too simplistic to be useful in the aspectual composition. What we need is not a simple tree-like structure but a more refined classification based on independent semantic motivations.

Reinterpretation phenomena: Thus far, we have looked at some directions in the study after Vendler (1957). The most distant version from Vendler will be the one that classify linguistic expressions hierarchically into more than four categories. The refined versions of aspectual classifications are, however, still not secure enough. In many cases, a verb or a sentence can 'shift' from its most 'natural' category to another quite easily. Seemingly ungrammatical sentences start making sense with little imagination, which is one source of the common assumption that aspectual semantics is complicated and elusive. Following sentences illustrate this point.

(9) a. John ran at three o'clock. (activity → achievement)
b. At 3 o'clock, Mary knew the answer. (state → achievement)

Given a context, these sentences become perfectly natural. When we want to make our aspectual semantics plausible, we need to tackle this reinterpretation phenomenon, instead of using it as a wastebasket. I will tackle this problem later in Section 3.

2. A Neo-Vendlerian Approach

Introduction

It was observed in the previous section that Vendler's classification should not be regarded as linguistically significant as a classification of verbs and other linguistic expressions. Rather, we need a more fine-grained verb classification motivated by more general grammatical

considerations. Is Vendler's view too simpleminded to provide the basis for aspectual semantics? My answer is 'No!'. In this section, I present an alternative theory that, I think, comes closer in spirit to Vendler's original.

First, I reinterpret Vendler's classes as types of aspectual situations denoted by linguistic expressions, but not classes of linguistic expressions themselves:[4]

(10) CLASSIFICATION OF SEMANTIC OBJECTS:
Vendler classes are categories of semantic objects denoted by linguistic expressions.

Then, I go on to argue that only four aspectual classes on the line of Vendler are to be distinguished to represent the internal time of linguistically described situations, and the category boundaries are not fuzzy:

(11) EXHAUSTIVENESS OF VENDLER CLASSES:
All and only the four categories proposed by Vendler are relevant for the aspectual classification of eventualities. We understand linguistically described situations as instantiating either one of Vendler's four situation types but nothing else.

I modify Vendler's taxonomy slightly by making the event-state distinction as the primary one.

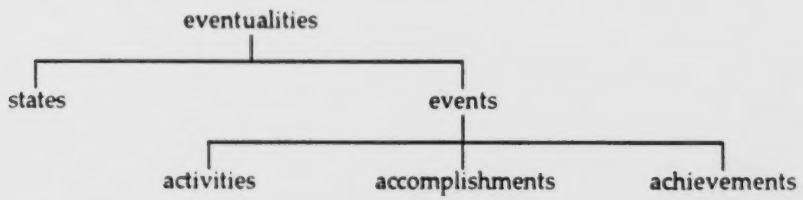

Figure 3: Classification of Eventualities

In this framework, the apparent complexity and subtlety in aspectual semantics is the epiphenomena created by the interaction of aspectual semantics with other aspects of grammar and human cognition. The 'reinterpretation' phenomena is handled by drawing a clear boundary between grammar and utterance interpretation, stating how extra factors enter into aspectual semantics. Together with the assumption that lexical aspect is purely and simply a notion of time, the framework sketched in this paper presents a simple representation of the English aspectual system.

To show how this system works, I take two steps. First, after reviewing the temporal nature of the four Vendler classes, I will illustrate that we need no additional categories. Our eventuality ontology will be

made clear and simple by putting all the leftovers into pragmatics and other linguistic wastebaskets. Then, we turn to the 'reinterpretation' phenomena and other semantics-pragmatics clashes, cleaning up the pragmatic basket.

Aspectual Classification of Semantic Objects

Let us turn to look at the temporal nature of Vendler's four situation types, namely states, activities, accomplishments and achievements. These four types are distinguished from one another by two tests which are purely linguistic and temporal in nature: compatibility with point-time adverbials and durative adverbials.[5] Note that asterisks indicate only that the sentence is ungrammatical in the intended reading, which is semantically ill-formed in the framework we are assuming. Other possible readings are discussed in Section 3.

Simple eventualities: Let us start with the characterization of events. Events occur at some particular time interval. For achievements the interval is a point in time, while for activities and accomplishments it is a time period.[6] In other words, achievements are punctual and activities and accomplishments are durative. The difference in temporal length of events is reflected in the compatibility with temporal adverbials.[7] Thus, achievements can occur with point-time adverbials while durative events cannot.[8]

(12) a.	*The kids played at 3:00.	(activity)
b.	*John ran a mile at 3:00.	(accomplishment)
c.	Fred crossed the border at 3:00.	(achievement)

This indicates that activities and accomplishments expressions both denote durative events. However, activities and accomplishments differ in their internal constitution. Accomplishments are inherently bounded (telic) while activities are not (atelic). In other words, accomplishments have a distinct culminating point as well as a durative process, but activities are homogeneous processes without culmination.[9] In this sense, accomplishments consist of an activity followed by an achievement.[10] This difference in temporal constitution determines the compatibility with durational adverbials with *for*:[11]

(13) a.	The kids played for three hours.	(activity)
b.	*John ran a mile for three hours.	(accomplishment)
c.	*Fred crossed the border for three hours.	(achievement)

In sum, activities are durative events that consist of homogeneous subevents. Accomplishments are heterogeneous events consisting of homogeneous subevents and a distinct culmination point. Achievements are atomic events which are unanalyzable into subevents.

	+homogeneous	-homogeneous
+durative	activity	accomplishment
-durative	achievement	—

Table 2: Classification of Events

Having an built-in endpoint, heterogeneous events have what Manfred Krifka names 'quantized reference property': whenever there is an event to which an accomplishment predicate applies, then no proper part of it can be an event described by the same predicate. Formally,

$$\forall P\,[QUA(P) \leftrightarrow \forall x, y\,[P(x) \wedge P(y) \rightarrow \neg\, y \sqsubset x]] \qquad \text{(Krifka 1992a: 32)}$$

For example, no proper part of an event of running a mile can be an event of running a mile. Accomplishments have quantized reference as well, since they are atomic events without internal constitution. Activities have, on the other hand, cumulative reference properties: whenever there are two different events named by an activity predicate, then the same predicate can be applicable to the sum event (cf. Quine 1960). See Krifka (1992a) for lattice-theoretic characterization of activities and accomplishments.

Next, we turn to distinguish states from events. As pointed out elsewhere, this is the primary distinction.[12] States hold, instead of occurring at some particular intervals. They sometimes appear to pattern with some event types, but they always behave differently. First, states can occur with point-time adverbials like achievements but differ in their interpretation.

(14) a. At 12:00, John was angry. (state)
b. At 12:00, John arrived. (achievement)

In (14a), the atomic sentence *John be angry* holds true for an indefinite duration including the instant specified by the adverbial. In (14b), on the other hand, does not allow this interpretation. While event sentences can be true only at some particular intervals, state sentences allow for a durative interpretation in which the situation holds for an indefinite duration (cf. Vlach 1981).[13] In this paper, we are not concerned with the details on the nature of states and stative expressions. I simply assume that events are bounded by temporal endpoints while states are not.

-bounded	+bounded
states	events

Table 3: Events and States

The following example, due to Barbara Partee, appears to be a counter-example to this characterization (C. S. Smith p.c.). In (15), the temperature was ninety only briefly, perhaps only at noon.

(15) At noon, the temperature was ninety and rising.

The durative interpretation is, however, necessary here. Suppose that we observed that the temperature was ninety at 12:00 sharp, and it rose to ninety-one after a second when we observed the thermometer again. It is still possible for the state expression *the temperature be ninety* to be true at 30 milliseconds after 12:00, since states are unbounded in time. Events are not, however, interpretable this way. When an event expression (e.g. *John arrive*) is true with respect to some interval (e.g. 12:00), the particular event cannot hold true at the same time with respect to another interval (e.g. thirty seconds after 12:00).

Second, states are like activities in that they occur with *for*-durationals. There seems to be no qualitative difference between the two situation types when bounded by durational adverbials, but this is not true. When bounded by *for*-durationals, activities merge into accomplishment, while states do not (cf. Bach 1981). The difference becomes visible, for example, when they appear in the *It take ... to ...* construction.

(16) a. Naturally, it took John an hour to run for an hour.
b. *Naturally, it took John a year to love Mary for a year.

Complex eventualities: I distinguish four types of complex eventualities, namely ITR(ϕ), PROG(ϕ), PERF(ϕ) and GEN(ϕ), which correspond to iterative, progressive, perfect and generic/habitual sentences respectively.

First, event sentences denote activity-type events under an iterative interpretation.

(17) a. John sang two songs in a minute. (accomplishment)
b. John sang two songs for three hours. (activity)

(18) a. Mary kicked the ball at that moment. (achievement)
b. Mary kicked the ball for an hour. (activity)

Iteratives are a subcategory of activities. They contain 'atoms', and are like nominal plurals in this respect (e.g. Krifka 1989, 1992a). To represent this, I employ a phonologically null predicate ITR that takes an event to form a complex predicate of activity type.

(19) SEMANTICS OF ITERATIVE PREDICATE
a. ITR maps an event into its iterative counterpart
b. ITR(ϕ) denotes an activity

Though the iterative reading is less salient in activities and accomplishments than in achievements, I consider all events to be inherently ambiguous at least in the temporal semantics of aspect. That is, the ITR operator applies blindly to all event types.

First, iteratives need to be separated from quantized events. Quantized events are modified by 'cardinal count adverbials' (i.e. *once, twice, N-times*) and are count-quantified in their 'nominalization transcriptions' (Mourelatos 1978). Iteratives are, on the other hand, mass-quantified in their nominal counterpart.

(20) a. John kissed Mary twice yesterday. (quantized)
b. There were two kissings of Mary by John yesterday.

(21) a. John ran a lot yesterday. (iterative)
b. There was a lot of running by John yesterday.

The paradigm in (20)-(21) suggests that quantized events are heterogeneous, needing to be distinguished from homogeneous iteratives. In fact, quantized events show the expected behavior with respect to atelic *for*-durational adverbials:

(22) a. [John kicked the ball ATELIC] for three hours. (iterative)
b. *[John kicked the ball twice TELIC] for three hours. (quantized)

Next, iterative readings need not be regarded as special, in spite of the fact that the interpretation is not always available in accomplishments and achievements. (The # marks are used to indicate that the sentence is unacceptable or ungrammatical for some reason we are not concerned within the current framework.)

(23) a. #Jack built a house for three days. (iterative)
b. #John killed an old man for three hours.

In (23), the iterative reading is impossible. However, it is not the aspectual semantics that makes these sentences anomalous. In fact, iteratives are impeccable with bare plurals and intensional NPs, as shown in (25a) and (b) respectively. In (25b), there must be two different houses that Jack built. Iteratives are also possible in fiction and other possible worlds where our normal assumptions about the real world do not hold, as (25c) and (d) illustrate. The contrast between (24) and (25) suggests that we should not to mark sentences like (23) and (24) as ungrammatical in

aspectual semantics. Rather, they must be filtered out by some other mechanism in our lexical knowledge of language and the world.

(24) a. #Jack built a house twice.
b. #John killed an old man twice.

(25) a. During his stay in Tokyo, John ate hamburgers three times.
b. Jack built David's house twice.
c. John killed the zombie three times.
d. In his dream, John killed an old man twice.

If the line of argument presented here is on the right track and accomplishments and achievements are inherently ambiguous between singular and iterative event readings, they must allow mass quantification in nominalization transcriptions. This prediction is borne out, as illustrated by the following example due to Bach (1989).[14]

(26) There { a. were lots of horses / b. *was a lot of horse } in the stable. (count)
There { c. were lots of kissings / d. was a lot of kissing } during the parade. (telic/atelic)

We can therefore conclude that all event verbs are potentially ambiguous between simple and iterative readings and the application of ITR is context-free to all event types. One advantage of this analysis of iteratives is that we do not have to state a category-shift rule that makes reference to the subject NP in order to derive the iterative activity reading. With the assumption that one and the same bomb does not explode twice, (27a) has only one single-event reading, but in (27b) the iterative reading is possible with the distributive reading of the subject NP *the bombs*. Thus, (27c) is fine when only a part of the bombs exploded.

(27) a. The bomb exploded. (achievements)
b. The bombs exploded. (activity/achievement)
c. The bombs exploded for an hour.

I also suggest three operators that form complex states. The PROG and PERF operators map eventualities into stage-level states, and the GEN operator maps events into individual-level states.[15] The details about these operators are beyond the scope of this paper.

(28) a. John wrote a letter. (event)
b. John was writing a letter. (progressive: stage-level state)
c. John has written a letter. (perfect: stage-level state)
d. John writes a letter every day. (generic: individual-level state)

Back to Vendler: Reducing Aspectual Categories

In the classification systems proposed hitherto, predicates are classified into several classes directly related to eventuality types, with possible later category conversions by rules. To put it different way, even when classifications are made of situations, they are at the same time classifications of linguistic expressions associated with the given eventuality type in one-to-one fashion.[16] For example, Lys and Mommer (1985) (henceforth L&M) present an extreme example of aspectual classification of this kind. L&M distinguish seven types, and Inagaki and Iwata (1990) show that seven is not enough and expand their categories into eight, still not being able to distinguish accomplishments properly. My claim in this paper is that the classification of eventualities should be independent of classification of linguistic expressions, and we need all and only Vendler's four categories. The classification of linguistic expressions like VPs or Ss does not seem to be linguistically significant but just encyclopedic. Rather, classifications should be made of lexical items in terms of their inherent (possibly underspecified) aspectual value and the possible compositional processes they may undergo. However, this paper is not concerned with this problem of how the lexicon and the grammar interact with each other to compose the sentential aspect. See Tenny (1986), Verkuyl (1989), Smith (1991) for detailed discussion of aspectual composition. The remainder of this section is devoted to the illustration of how extra categories other than Vendler's can be eliminated.

Dynamic states: Let us start with 'dynamic' verbs. In many aspectual classifications, such verbs as *stand* and *lie* (henceforth dynamics) are given an independent status (e.g. Dowty 1979; L. Carlson 1981; Quirk et al. 1985; Bach 1986). It is claimed that these verbs are between states and activities from the aspectual point of view. L. Carlson (1981) points out that they are like states because they occur with instantaneous adverbials, but like activities in that they can appear in the progressive.

(29) a. At seven o'clock, the caravan stood in its old place. (state)
b. At seven o'clock, the caravan was standing in its old place. (activity)

Notice that the subject in (29), *the caravan*, is ambiguous between animate and inanimate, or possibly between agentive and non-agentive. Ambiguities of this sort can hold in Japanese as well. In Japanese, nouns like *kyaraban* 'caravan' can occur not only in *aru*-existentials that take inanimate subjects but also in *iru*-existentials that take animate subjects, as shown in (30) below:

(30) a. Kyaraban-ga motono-basho-ni atta
caravan-NOM old-place-LOC be$_{aru}$-PAST
The caravan stood in its old place'

b. Kyaraban-ga motono-basho-ni ita
caravan-NOM old-place-LOC be*iru*-PAST
'The caravan was standing in its old place'

These examples suggest that it is possible to argue that verbs like *stand* and *lie* appear either as an activity when they occur with an animate subject or as a state when they occur with an inanimate subject.[17] In fact, as I will argue, this polysemy analysis is preferable. Consider the following. According to Quirk et al. (1985), dynamics are 'characterized by their ability to be used both (a) with the nonprogressive to express a permanent state, and (b) with the progressive to express a temporary state'.

(31) a. The city lies on the coast.
His statue stands in the city square.
b. People are lying on the beach.
He is standing over there.

However, the contrast Quirk et al. (1985) found is only superficial. First, the permanent-temporal contrast is not unique to dynamic verbs under our assumption of the function of the progressive. Application of the progressive to a state sentence yields a temporal interpretation.

(32) a. Mary eats Japanese food. (state: generic)
b. Mary is eating Japanese food these days. (state: progressive)

(33) a. John lives in Austin. (state: lexical)
b. John is living in Austin. (state: progressive)

Second, the permanent-temporary distinction in (31) corresponds to the subject's inanimate-animate distinction. If dynamic verbs denote a single situation type, then they are expected to behave with no regard to the subject's animacy. Contrary to this expectation, these verbs behave differently when making reference to a subject's animacy:

(34) dynamics referring to an activity
a. *At that point John stood in front of the Tower.
*Mary lay on the ground at that moment.
b. John stood in front of the Tower for three hours.
Mary lay on the ground for a while.
c. John was standing in front of the Tower for three hours.
Mary was lying on the ground when John arrived.

(35) dynamics referring to a state
a. The statues stand in front of the Tower.
b. The statues are standing in front of the Tower.
c. *The statues stand in front of the Tower at this very moment.

The paradigm in (34) indicates that *stand* and *lie* denote activities with human subjects. In contrast, (35) illustrates that these verbs name states with inanimate subjects. In other words, dynamic verbs are polysemous lexical items. The point is: dynamics cannot denote both an activity and a state at the same time, but rather they have interrelated multiple senses with different aspectual meanings.

(36) a. John ran through the town.
The river runs through the town.
b. Mary was facing an invader.
Her house faces the river.
c. John looked at the picture.
His room looks to the south.

Note that dynamic verbs do not form the only verb group that denotes both events and states. Many other verb classes including perception and psych verbs have this multiple-entry property as well. Dynamic verbs are not different from them in this respect.

Result states: 'Result state' verbs can take *for*-durationals that modify result state of the event named by the verb (Lys and Mommer 1985).

(37) a. The janitor unlocked the door for fifteen minutes.
b. The lake froze for forty days.

What should be noted here is that *for*-durationals in (37) specify durations of the result state which by itself is not named by the verb, and have no influence on the determination of eventuality named by the verb.[18] These result states, as Mittwoch (1980) points out, do not necessarily hold after the event expressed by the sentence. This means (38) is not an accurate paraphrase of (37a). This becomes visible when the subject is agentive. Thus the sentences in (39) contains nothing contradictory:

(38) The janitor unlocked the door and the door was unlocked for fifteen minutes.

(39) a. He lent me the book until Monday but I gave it back on Sunday. (Mittwoch 1980)
b. Yesterday John went to Tokyo for a week.

These examples indicate that the result states are intensional and therefore not located on the real-time axis together with their causal events as the states actually holding in the world. For this reason, I take result states simply as states that are introduced as an implicature in this special construction. I assume this construction as an instance of the English resultative construction. See Goldberg (1992) for detailed examination of the resultative and related constructions in English.

Heterogeneity-neutral events: 'Unspecified culmination point' verbs can occur with both telic and atelic adverbials (Lys & Mommer 1985).

(40) a. The icecream corn [sic] melted in/for ten minutes.
b. Grandmother Lina washed the skillet in/for five minutes.

They can be either accomplishments or activities, depending on the speaker-hearer's assumption, i.e. according to whether s/he views the change as relative or absolute. However, they cannot denote both at the same time.[19] These verbs are underspecified for heterogeneity. Inchoative achievements may therefore form a verb class, but may not form a verb class that is uniquely related to some eventuality.

Duration-neutral events: Lys & Mommer (1985) analyzed the verbs in (41)-(42) as denoting DN-CP event (durative nucleus + culminating point). They can take both point-time adverbials and telic adverbials.

(41) The janitor locked the door { a. at 10 o'clock / b. in ten minutes }.

(42) The cat drowned { a. at 10 o'clock / b. in ten minutes }.

The temporal scheme of DN-CP appears to correspond to accomplishments, but there is one important difference which L&M fails to distinguish:

(43) *John built a house at 3:00. (accomplishment)

If the temporal organization of these is the same, they should behave in the same manner aspectually. Otherwise, we need to posit another situation type to make them different, which will complicate our aspectual semantics. Furthermore, a closer examination of (41)-(42) will tell us that these verbs do not even form a natural class.

(44) a. *The janitor locked the door in ten minutes. It was at 10:00.
b. The cat drowned in ten minutes. It was at 10:00.

The event of locking the door can be durative or instantaneous, depending on the context, while the event of drowning is not. The verbs like *lock* must be underspecified for duration. They can be either accomplishment or achievement but never both at the same time. On the other hand, verbs like *drown* cannot be durative. This is true whichever possible world we are in, whatever belief we have. Verbs like *drown* should not be treated as accomplishments because (42b) does not mean that the cat's drowning continued for 10 minutes.

For this reason, instantaneous change-of-state verbs like *drown, arrive, die* and *reach (the top)* (henceforce, *arrive* verbs) are frequently isolated from other verbs which denote instantaneous events (e.g. L. Carlson 1981; Bach 1986; Moens & Steedman 1987, Talmy 1988; Smith 1991). It is argued that they denote a different type of eventualities from verbs like *knock, blink,* and *hit* (henceforce, *knock* verbs). Consider the contrast between (45) and (46). While *knock* verbs in (45) are often interpreted as denoting iterative events, *arrive* verbs in (46) normally appear in the progressive as denoting a single event. This difference in interpretation is another motivation for the special treatment of *arrive* verbs.

(45) *arrive* verbs: Prog(ϕ): ϕ = accomplishment
   a. John is arriving in five minutes.
   b. The patient was dying.
   c. Mary was reaching the top.

(46) *knock* verbs: Prog(ITR(ϕ)): ϕ = achievement
   a. Jenny was knocking at the door.
   b. Bill is blinking now.
   c. Mary is hitting John.

Suppose that the eventuality denoted by *arrive* verbs has an independent status. Then, we need to explain why they can take both instantaneous and durative adverbials as in (42). I argue that the verb in (42) simply names an achievement and, does not instantiate a special event type. But, then, a question arises as to why (41d) is possible. Remember that we are separating the classification of eventualities as types of semantic objects from the classification of linguistic expressions as names of these semantic objects. My answer is that it is possible via 'reinterpretation'. Similarly, we can simply state that the sentences in (45) are the progressive of (reinterpreted) accomplishments. We will discuss such 'reinterpretation' procedures in Section 3.

In this section, I have argued that if we aim at a classification of eventualities in terms of a purely temporal point of view, we can avoid inflation of aspectual categories and limit them into Vendler's original four. This means that semantic objects denoted by linguistic expressions fall into one of the four categories without any exception, and leads to a rather strong hypothesis about human cognitive activity that people categorize situations in the world in one of the four types.

3. Vendler Classes in Contexts

Grammar vs. Pragmatics

Thus far, we have examined Vendler's four-part taxonomy as temporal classification of semantic objects denoted by predicative expressions

from a purely temporal viewpoint ignoring extratemporal as well as extralinguistic factors. Throughout this process, we have ruled out many sentences as ungrammatical when they are acceptable in their non-literal interpretation. On the other hand, our system has allowed many sentences that are aspectually possible when we do not really use them. We are now in a position to say something about aspectual interpretation in context.

Before going on to the discussion of semantic/pragmatic clashes and reinterpretation problems, we have one important distinction to which we should draw attention: the distinction between the (tacit) knowledge of language structure and (tacit) knowledge of language use. Chomsky has made this distinction explicit with the introduction of generative linguistics. The following is the standard Chomskyan view of this distinction.

> What is knowledge of language? Answer: language is a computational system, a rule system of some sort. Knowledge of language is knowledge of this rule system.
>
> How is language used? Answer: the use of language is rule-governed behavior. Rules form mental representations, which enter into our speaking and understanding. A sentence is parsed and understood by a systematic search through the rule system of the language in question.
>
> (Chomsky 1988: 24)

He makes clear distinction between the system of knowledge of language (i.e. linguistic structure) and the various processing systems that put such knowledge into use. Following Chomsky in this respect, let me summarize the difference between the theories of language structure and its use.[20] Here, since our information on such processing systems are so scarce, I confine myself to utterance interpretation. The theory of grammar generates all the grammatical structures and rules out all the ungrammatical structures. In this sense, the grammar is just a source of ambiguities, and does not provide the best interpretation for utterances. Furthermore, sentences in isolation do not provide enough information for utterance interpretation either. The theory of utterance interpretation, on the other hand, is deterministic, and uses more information than language provides. In this sense, utterance interpretation employs abductive and goal-oriented procedures, where contexts, memory, encyclopediac knowledge, reasoning ability, etc. are involved. The grammar may be considered as instructions and constraints on utterance interpretation.

Relevance Theory: A Theory of Utterance Interpretation

A good candidate for the theory of utterance interpretation is Relevance Theory proposed by Sperber and Wilson (1986).

> Linguistic decoding provides input to the inferential phase of comprehension; inferential comprehension involves the construction and manipulation of mental representations. An utterance can thus be expected to encode two basic types of information: representational and computational, or descriptive and procedural - that is, information about the representations to be manipulated, and information about how to manipulate them. (Wilson and Sperber 1993: 2)

If we take the relevance-theoretic point of view, the goal of communication is to attain maximal cognitive effects with minimal processing efforts:

(47) PRINCIPLE OF RELEVANCE:
Any utterance addressed to someone automatically conveys the presumption of its own relevance.

(48) RELEVANCE:
a. Other things being equal, the greater the cognitive effect achieved by the processing of a given piece of information, the greater its relevance for the individual who processes it.
b. Other things being equal, the greater the effort involved in the processing of a given piece of information, the smaller its relevance for the individual who processes it.
(Wilson and Sperber 1988: 140)

In this theory, idealized participants of conversation cooperate with each other to make their conversation optimally relevant. The speaker guarantees the utterance to be as easy as possible for the hearer to process, and the hearer makes the best hypothesis about the speaker's intention, by picking up a context that makes the relevance maximal. Technically, the best interpretation is the one that causes most effective information change in the hearer's database with least processing effort, or alternatively, the one that implies maximal cognitive effect with minimal deductive effort. In this sense, utterance interpretation is not bottom-up: the hearer's task in utterance interpretation is (i) to form an explicature of utterance that leads to a relevant implicature and (ii) to form relevant implicature based on the explicature of the utterance. The explicature formation procedure assumed in this study is sketched in Figure 4 below.

<u>The best interpretation among alternatives</u>: With this relevance-theoretic view in mind, let us go back to discuss aspectual interpretations. First, consider the following sentences again, repeated here as:

(49) #John killed the old man twice.

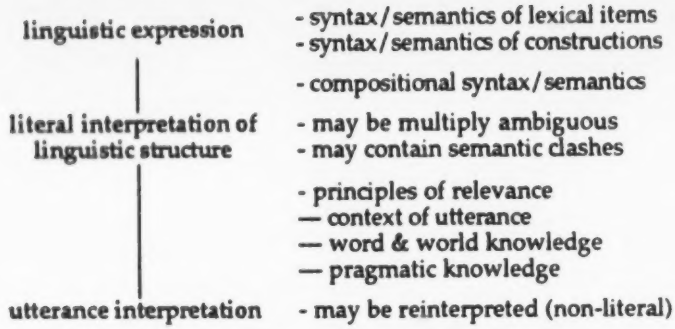
linguistic expression
- syntax/semantics of lexical items
- syntax/semantics of constructions
- compositional syntax/semantics
literal interpretation of linguistic structure
- may be multiply ambiguous
- may contain semantic clashes
- principles of relevance
— context of utterance
— word & world knowledge
— pragmatic knowledge
utterance interpretation
- may be reinterpreted (non-literal)

Figure 4: Formation of Explicature

Our aspectual semantics judges (49) as well-formed, even though we do not usually use such sentences. Remember that even if semantics permits unavailable interpretations, as it might, they simply will not be available. Parsability is not a requirement that must be met by the semantics. But, why does this sentence seem uninterpretable? Because the repetitive interpretation in (49) contradicts our belief about the world. Under the assumption of relevance, (49) would be interpreted as a metaphor (John did something very horrible to an old man twice), or the hearer would ask the speaker for more information to make (49) relevant. However, when the hearer has the information activated in his/her database that we cannot die twice, (for example, when s/he is considering whether human beings can be revived), the sentence can be relevant, because (49) in this context leads the hearer to infer that the speaker is saying that human beings can actually revive with (49) as its evidence.

Next, let us consider the paradigm in (50) and (51) again. Remember we treated linguistic expressions in (50) and (51) the same in that both denote an achievement event. Since achievements are incompatible with the progressive, the only grammatical option for sentences in (50)-(51) is to be interpreted as the progressive of iterative activity.

(50) a. Jenny was knocking at the door.
b. Bill is blinking now.
c. Mary is hitting John.

(51) a. The patient was dying.
b. John is arriving in five minutes.
c. Mary was reaching the top.

This iterative reading is, however, ruled out for (51), because it contradicts our normal assumption of the world that such events as dying and John's arriving do not repeat in regular situations. Hence, in this case, literal interpretation cannot be relevant. Since utterance interpretation relies heavily on the speaker/hearer's common sense knowledge as well as the

context of utterance, when the speaker wants to mean literal but non-salient interpretation, s/he needs to provide enough context to make his/her utterance relevant to the hearer (i.e. easily accessible to the hearer), or to use some other means to convey the same information. When the literal reading is not salient, the hearer, on the other hand, needs to find some contextual effects that makes the utterance relevant. Thus, the sentences in (51) are reinterpreted as the progressive of an accomplishment. Note that this reinterpretation is blocked in (50) because their literal interpretation is relevant.

Semantic Clashes and Reinterpretation

Let us now return to our main subject: reinterpretation.[21] I use the term 'reinterpretation' technically here to mean interpretation which is unavailable from grammar but attained by the principle of relevance. I do not claim that the hearer is actually re-interpreting the utterance in the face of semantic/pragmatic mismatches. Reinterpretation procedures are highly conventionalized and form a part of knowledge about the language. I distinguish three types of reinterpretation processes.

Shift of standpoint: The first type of reinterpretation is exemplified in (52). In (52a), the 'punctual' predicate *flash* is treated as referring to a durative event, and in (52b) the 'durative' predicate *climb the fire-ladder* is treated as denoting a punctual event.

(52) a. The light flashed for 10 milliseconds.
b. Moving along on the training course, she climbed the fire-ladder exactly at midday. (Talmy 1988)

The use of a durative or a punctual adverbial instructs the hearer to change his/her standpoint, in case of (52a) to zoom in, and in case of (52b) to zoom out. This shift of standpoint, or granularity of events in time, can be thought of as reconceptualization of situations in the world by moving from its 'default' standpoint to another. As Mittwoch (1980) puts it, 'like the geometrical point the punctual verb is an idealization'. This context dependent nature of event duration does not conflict with our thesis that there are four distinct eventuality categories, since what we are classifying is not the event in the world but the grammatical categories.[22] In this case, different ways of categorizing events tell us the relevant mode of speech by setting up the granularity level in describing events.

Accommodation of event concept: The second type of reinterpretation is illustrated in (53), where the 'durative' predicate *built a cabin* appears with a point-time adverbial. As Bach (1981) points out, (53) is possible in the context of Bill being a magician. More often than not, our normal assumption about the duration of events named by verbs is frozen, but here again the instantaneous adverbial guides our interpretation of the utterance. In this context, (53) conveys optimal relevance in that it makes

the hearer infer that Bill can make a cabin instantaneously, as illustrated in (54). Note that the information in (54b)-(54c) cannot be expressed more economically by any other expression.

(53) At 4 o'clock, Bill built a cabin. (Bach 1981)

(54) a. Bill is a magician [premise]
b. Bill built a cabin at 4 o'clock [explicature of (53)]
c. Bill can make a cabin instantaneously. [implicature of (53)]

This reinterpretation process is different from the one discussed above. We do not change our standpoint but we change our assumption about what the cabin-building event is like. Reinterpretation of this type is not restricted to such a special case. Consider (55). One reading of (55) is John's opening the door is in progress at the time of utterance. In this reading, the use of the progressive leads us to interpret the door-opening event as durative.

(55) John is opening the door now.

This cannot be identified with the shift of standpoint, because (55) implicates that the event is taking more time than to be taken as an instantaneous event. It implicates that John is opening the door gradually perhaps because the door is heavy.

Metonymy link: The last and the most interesting type of reinterpretation involves metonymic associations. I assume that our encyclopedic knowledge includes event scripts, inference chains of situations metonymically (e.g. causally, temporally) related to particular events (cf. Schank and Kass 1988). The sentences in (56) are the first set of examples of this type of reinterpretation. In (56) the state expressions conflict with change-of-state adverbials.

(56) a. I knew *immediately* what he had in mind.
b. I am regretting it *already*. (Lyons 1977)
c. I will be back *in a minute*.

Under the presumption of relevance, the hearer introduces by inference an event metonymically related to the state named by the predicate, namely the event of coming into the state. Similar examples are given in (57).

(57) a. John needs $1000 *by Monday*. (ingressive reinterpretation)
b. I went to Tokyo *for three days*. (resultative reinterpretation)

This metonymical reinterpretation makes both of the conflicting expressions stay alive by introducing a new event by inference. In (56a), for

example, the use of *immediately* tell the hearer that something happened immediately and the rest of the sentence tells him/her that the speaker knew what 'he' had in mind. The clashed predicate *know immediately* triggers metonymical association. The hearer infers that what happened immediately is the event of the speaker's getting to know what 'he' had in mind, based on his knowledge that if one gets to know something, s/he knows it. This inferential process is summarized as follows.

(58) Q: What happened immediately?

a. ∃e Know(e)	[linguistically introduced]
b. Come.to.know(e) → Know(e)	[logical entailment]
c. ∃e Come.to.know (e)	[from a, b by inference]

This ingressive interpretation is triggered by crosssentential contexts as well:

(59) Max switched off the light. The room was pitch dark.
(Lascarides 1992)

We need to clarify one point here. This reinterpretation process is part of English speakers' knowledge about English. In other words, it is a conventionalized procedure of attaining non-literal interpretation. Yamanashi (1987) distinguishes three kinds of metonymical relations that characterize the associative processes of natural language:

(60) a. Semantic Metonymic Relation
b. Conventional Metonymic Relation
c. Pragmatic Metonymic Relation

This ingressive reinterpretation should be regarded as conventional metonymic process. First, this conventional aspect of this reinterpretation process becomes visible in crosslinguistic comparisons. Consider (61), Japanese counterpart of English sentences in (58).

(61) a. #Taroo-ga denki-o keshita. Heya-ga makkura-datta.
(lit.) Taro switched off the light. The room was pitch dark'
b. Taroo-ga denki-o keshita. Heya-ga makkura-ni natta.
'Taro switched off the light. The room became pitch dark'

In Japanese, this ingressive interpretation is unavailable for statives as shown in (61a). Japanese speakers need to use non-stative 'become' to convey the ingressive reading. This shows that the ingressive reinterpretation is not merely a reflection of general human cognitive ability, but rather a conventional procedure of utterance interpretation in English. However, this metonymic relation is still pragmatic and cannot be identi-

fied with a polysemic relation. This is illustrated in (62), where the ingressive reinterpretation is not readily available for the first discourse.

(62) a. #People began to leave. The room was empty. The janitors came in.
b. People began to leave. When the room was empty, the janitors came in.

(Partee 1984)

The ingressive reinterpretation is also available for activity expressions with point-time adverbials. Again, the point-time adverbial signals the hearer to find the relevant punctual event that is metonymically related to the durative event named by the verb, yielding an inchoative interpretation.[23]

(63) a. Mary ate dinner at six o'clock.
b. John ran at 4:30.

Accomplishments, however, do not allow this ingressive reinterpretation, as shown in (64). In other words, English does not have a conventional way of reinterpreting such sentences.[24]

(64) #John built a cabin at three o'clock.

The sentence (65a) below is an apparent counter example to this generalization. The inchoative interpretation of (65a) comes from the potential ambiguity of English indefinite article *a/an*. Since bare plurals do not express an indefinite quantity less than one, singular nouns with *the* or *a/an* sometimes make verb phrases ambiguous between activity and accomplishment, and the interpretation is variable according to the speaker and the context. The sentences in (65b) and (65c) support this view.

(65) a. John wrote a letter at 3:00.
b. #John wrote two letters at 3:00.
c. John wrote a/ #one letter for thirty minutes.

Temporal adverbials with *in* measure the period of time within which a change of state takes place, and the interval is measured from some pragmatically salient time-point. Consider the following utterance.

(66) Mary studied Japanese in an hour.

In a neutral context, this sentence would be interpreted as 'Mary started studying Japanese in an hour' via ingressive reinterpretation. In more contextual support, however, an activity-to-accomplishment reinterpretation is also possible through the accommodation of the event concept:

(67) I had a lot to do today. I studied Japanese in an hour, but the economics homework took forever to finish it.

In such case, the ingressive reinterpretation is ruled out by context. By reinterpreting *study Japanese* as an accomplishment of, say, finishing off the daily Japanese homework, the hearer can find a punctual metonym of the event named by the verb, namely the culminating point of the reinterpreted accomplishment.

Metonymical association and events in the progressive: Let us now extend the observation of metonymically motivated reinterpretation processes into progressive sentences. I assume that the function of the progressive operator in the event domain is to take a durative event and return a stage-level state where the event named by the verb is going on, which can be stated as follows (cf. Vlach 1981, Kawamura 1991a):

(68) FUNCTION OF THE PROGRESSIVE IN THE EVENT DOMAIN
a. PROG is a function that maps a durational event into the corresponding stage-level state.
b. Meaning postulate for the progressive
If there is a state PROG(ϕ) that holds at time t, then there is an event e' such that it is part of the event ϕ and e' occurs at time t' that precedes t.

Under this view, the punctual-durative contrast is the determinant of compatibility with the progressive: durative events can occur with the progressive, but achievements cannot.

As we can expect from the discussion above, achievements can appear in the progressive via reinterpretation, for example by shifting the standpoint:

(69) Fred was crossing the border at that moment. (zoom-in)

Reinterpretation in terms of metonymical association is also possible, and in fact provides more interesting examples.

(70) a. John is arriving.
b. Mary was reaching the top.

In (70), the achievement-denoting expressions have conflicts with the progressive that requires a durative event. This category mismatch guides the hearer to look for a durative event that is metonymically related to the achievement named by the verb, based on his/her common sense about the world. Here, what seems to be happening is the introduction of a pragmatically determined preliminary stage that lead to the achieve-

ment event. This preliminary stage together with the achievement forms an accomplishment event, satisfying durative-event requirement by the progressive. Compare (70) with literal accomplishments in (71). The literal accomplishments do but the reinterpreted ones do not have the definite starting point of the process leading to the culmination. For example, in (70) we cannot be sure when John started arriving nor when Mary started reaching the top.

(71) a. Jenny is writing a paper.
b. Sean is studying for the final.

If I am on the right track, I can provide a new view to the so-called futurate progressives in English.[25] The following are the examples of the futurate construction:

(72) a.	Mary is rehearsing tomorrow.	(activity)
b.	Jenny is writing a report next week.	(accomplishment)
c.	Lisa is reaching the moon at dawn.	(achievement)
d.	*John is knowing the answer tomorrow.	(state)

This construction contains a semantic clash between the future-time adverbial and the progressive aspect, but is interpreted as referring to a 'preparatory state' of the event named by the verb (cf. Smith 1981, Dahl 1985, Kawamura 1991). Let us expand our analysis to this construction. First, consider (72c). This is identical to the examples in (70) with the difference that the former contains the future-time adverbial. In (70), we have literal achievement and reinterpreted accomplishment events. Let us assume that we have these in (72c) as well. The future-time adverbial guides the hearer to find an event that happens in the future. Fortunately, we have the literal accomplishment that is yet to happen at the time of utterance. Thus, the metonymic association can fix the semantic clash in (72c). But how can we make metonymically motivated the interpretation procedures for futurates in (72a) and (72b)? In these sentences, the literal events are already durative, being in perfect harmony with the progressive aspect. Given the interpretation procedure for achievement futurates, we can hypothesize that the use of future-time adverbial instructs us to adopt a zoom-out perspective. Be that as it may, the literally durative events as a whole are reconceptualized as punctual, making us to follow the same interpretation procedure for achievement futurates. Thus, futurate progressive constructions are analyzed as combinations of standpoint-shift and metonymy-link reinterpretations. Though it is subject to historical examination of the futurate construction, extension of the interpretation procedure from achievement progressive to futurate progressive in general through achievement futurates seems to be a plausible hypothesis.[26]

Before closing this section, I want to give an indirect support to my analysis of achievement progressives through its comparison with Japanese data. The following are the literal counterparts of English achievement progressives.

(73) a. Taroo-ga shin-deiru (Japanese)
Taro-NOM die-PROG-PRES
Taro is dead / *?Taro is dying'
b. Hanako-ga ki-teiru
Hanako-NOM come-PROG-PRES
'Hanako has come / *?Hanako is coming'

As shown in the gloss, the reinterpreted accomplishment progressive reading is not available in Japanese. In Japanese, the progressive form is inherently ambiguous between on-going-process and result-state interpretations.[27] This indicates that the grammatically provided literal interpretation for achievement progressive preempts the accomplish reinterpretation in Japanese.

In this section, I have attempted to explain the reinterpretation phenomena based on the semantics proposed in the previous section, and also laid out the mechanism of utterance interpretation needed to make my claims precise. The proposed account for the reinterpretation procedures is motivated by human cognitive processes and the presumption of the existence of four eventuality types independently of verb meaning.

Conclusion

Any adequate theory of aspect must answer at least the following three questions:

(Q1) What sort of aspectual classification is linguistically significant?
(Q2) How do extralinguistic factors enter into the aspectual semantics?
(Q3) What makes aspectual phenomena apparently so complex?

In this informal study, I have presented my partial and tentative answers to these questions. My answers to the first two questions are summarized as follows:

(A1) Classification of linguistic expressions and classification of semantic objects must be differentiated. As for the latter, I have argued for a four-way taxonomy on the line of Vendler (1957) in which the four categories have clear boundaries.
(A2) Linguistic information provides only partial information for the construction of the propositional meaning an utterance conveys.

Different ways of categorizing situations in the world by language guide the hearer to make a best hypothesis about the meaning the speaker wants to convey.

These two answers together give us an answer to the third question. I would like to conclude:

(A3) The apparent complexity and subtleties of the aspectual phenomena found between verbs and sentences/utterances are the epiphenomena created by the interaction between grammar (aspectual semantics) and cognition (utterance interpretation).

NOTES

* I wish to thank Manfred Krifka, Carlota S. Smith, and an anonymous KWPL reviewer for their comments and criticisms on earlier versions of this paper. Thanks are also due to Eric Dwyer and Anne-Marie Guerra for lending me their intuition about English. All errors and infelicities are, as always, my own.

1 Following Bach (1981), I use the term 'eventuality' as a generic term for aspectual situation types.

2 In the following tests, asterisks must be taken as indicating that the sentence in question is judged as ungrammatical in Vendler's grammar of aspect.

3 By 'atomic sentences' I mean sentences that are yet to be connected with tense operators.

4 I am not the first to state this idea explicitly; Vendler classes have been treated as a reference type of verbal predicates in algebraic semantics. See, for example, Link (1987) and Krifka (1989, 1992a) among others.

5 The reason I am using only these particular tests among the rather varied ones in the literature is that these two tests are (i) sufficient for our present purposes, (ii) clearly temporal, so that they can be straightforwardly related to the temporal constitution of eventualities, and (iii) relatively free from atemporal factors that place further restrictions on their applicability. For a different view, see Smith (1991) among others.

6 The terms 'accomplishment' and 'achievement' do not match our temporal characterization of eventualities they refer to. However, I follow the standard terminology even though they are misleading.

7 The compatibility with the progressive can also serve as a test for discriminating durative and punctual events. The progressive will be discussed in Section 3.

8 Whether a linguistic expression denotes a punctual or a durative event is often pragmatically determined, probably because it reflects how we perceive situations happening and holding in the world. See Section 3 for more discussion.

9 Whether a durative expression denotes a homogeneous or heterogeneous event is grammatically determined by the predicate's thematic information.

10 Pustejovsky (1991) considers that accomplishments consist of a process followed by a result state. Achievements are treated similarly as a transition decomposed into two states. The framework employed in this paper does not allow result states to be part of the event named by the verb. Rather, result states are treated as lexical entailment of the verb, since they are not in the extension of the predicate. I will discuss result states later in this section.

11 Telic durative events are compatible with adverbials headed by *in*. *In*-adverbials measure the time span from some pragmatically determined time-point to the time-point where a change of state takes place. See Mittwoch (1980: 209-210) for more discussion on this point.

(i) a. *The kids played in three hours. (activity)
b. John ran a mile in three hours. (accomplishment)
c. Fred crossed the border in three hours. (achievement)

States and activities are incompatible with *in*-adverbials because the situations they denote are durative and contain no distinct transitional point in their temporal constitution. Being atomic events, achievements are compatible with telic *in*-phrases, because they are transitional points by themselves.

12 For another view, see Verkuyl (1989) where activities are considered as having intermediate status between states and telic events.

13 Individual-level state sentences are pragmatically odd with instantaneous adverbials. See Vlach (1981) for discussion. Note also that events

do have the durative interpretation when they are combined with the progressive or generic operator.

[14] Bach's (1989) grammaticality judgments are modified here to fit the characterization in the present theory, based on C. S. Smith's (p.c.) judgments.

[15] The GEN operator probably needs two arguments, a restrictor and a nuclear scope. See Krifka (1992b) for detailed discussion. For the distinction between individual-level and stage-level predicates, see G. Carlson (1977) among others.

[16] The need for multiple classification of linguistic expressions is also observed in Smith (1991).

[17] These verbs have yet another sense equivalent to *stand up* and *lie down*. We are not interested in such achievement readings here. For a different treatment of these verbs, see Smith (1991).

[18] The sentences in (37) have an activity reading as well, but do not discuss this reading because it is of irrelevance to the current discussion.

[19] Similar cases are found in nouns as well: *cake* may be either mass or count.

[20] I do not, however, identify knowledge of grammar with knowledge about language. Knowledge of language must include pragmatic knowledge as well as knowledge of grammar. See Gabbay and Kempson (1991) where the grammar is integrated into a framework of general reasoning.

[21] Moens and Steedman (1988) and Pustejovsky (1991a, 1991b, 1993) are brought to my attention after writing this paper. They employ the notion of 'coersion' to account for the phenomena described here as 'reinterpretation'. Pustejovsky defines the term as follows:

> TYPE COERSION:
> a semantic operation that converts an argument to the type which is expected by a function, where it would otherwise result in a type error. (Pustejovsky 1991b, 425)

Their views about the role of grammatical categorization in creative aspects of language use have much in common with the relevance-theoretic account advocated in this paper. However, I do not go into their proposals here in any detail.

22 What eventuality a given linguistic expression 'normally' denotes may vary person to person, and utterance situation to utterance situation. The existence of variance does not weaken my claim. It is the values for variables that may be unstable and dependent on utterance contexts and individuals' normal assumptions about the world, but not event types themselves.

23 When an activity event is completed, it must have both initial and final endpoints. We need to provide some cognitive motivation for the fact that only ingressive reinterpretation is available for such sentences, since this does not seem to be an arbitrary convention in English. A possible speculation would be that the initial endpoint is more accessible and hence relevant to the hearer because of its temporal precedence over the final endpoint, since our perception follows the temporal order of events.

24 Probably this is because accomplishments have a heterogeneous internal structure. Accomplishments are a coordination of a process subevent and a culmination subevent, and the event introduced by ingressive reinterpretation is related only to the former subevent. However, the following sentence is perfectly ambiguous in Japanese.

(i) Watashi-wa 2-ji-ni uchi-e kaet-ta.
(lit) 'I returned home at two o'clock'
'I left (somewhere) for home at two o'clock'
'I went home and arrived there at two o'clock'

25 Futurate progressives are discussed in Kawamura (1990) in more detail. See also Smith (1981, 1991) and references cited there.

26 For conventionalization of pragmatic inferences, see Hopper and Traugott (1993).

27 The Japanese progressive *te-iru* is morphologically decomposable into a verbal suffix *te* and a verb *iru* 'be/exist'. The progressive/result state ambiguity stems from the ambiguity inherent in *te*-linkage. See Hasegawa (1992) for extensive discussion on this topic.

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